

ABSTRACT

Araceae family ornamental plants such as Monstera, Philodendron and Anthurium require special care in order to grow and develop well. One important part of maintenance is watering which must be done regularly, but sometimes the plant owner forgets or does not have time to water it by hand, therefore a system that can water automatically is needed. The purpose of this research is to develop and implement an automatic irrigation and monitoring system for ornamental plants of the Araceae family using an embedded system. The system is designed using microcontroller as the brain of the system, soil moisture sensor yl-69 to monitor soil moisture, temperature sensor and water pump to perform automatic watering. Soil moisture data will be processed by the microcontroller and if the soil moisture is below the predetermined threshold of 500, the microcontroller will run the water pump to perform watering. In addition, the system is also integrated with the Thinger.io IoT platform to monitor soil moisture and temperature in real-time. The results show that the automatic watering system can monitor soil moisture and temperature in real-time using Thinger.io. The system activates an automatic water pump when soil moisture is below 500 or in units of %VWC to 51%VWC, ensuring optimal conditions for Araceae plants. The DHT22 sensor has an accuracy of 0.06% to 1.7% with an average error of 0.86% at temperatures of 26°C-34°C. This research successfully developed an effective automated irrigation system that can be monitored remotely, providing a practical solution for plant owners.

Keywords: *automatic irrigation, water pump, Soil yl-69, temperature sensor, thinger.io.*